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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/823,502

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Chunlin Tao

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EXAMINER

GROSS, CHRISTOPHER M

ART UNIT

PAPER NUMBER

1639

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/823,502	Applicant(s) TAO ET AL.	
	Examiner CHRISTOPHER M. GROSS	Art Unit 1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Responsive to communications entered 5/2/2008. Claims 1-14 are pending. Claims 1-14 are examined herein. Please note the claim set filed 1/28/2008 has not been entered in accordance with the advisory action mailed 3/5/2008.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120 is again acknowledged: this application is a DIV of application 09/847,113 filed 05/01/2001 (now PAT 6,753,143) which claims benefit of provisional application 60/201,026 filed 05/01/2000 and is a CIP of application 09/626,096 filed 07/26/2000.

Withdrawn Objection(s) and/or Rejection(s)

The rejection of claims 1-14 under 35 U.S.C. 102(e) as being anticipated by Marks et al (US Patent 6,203,758) is hereby withdrawn in view of applicant's persuasive arguments entered 5/2/2008 as discussed at the pre-appeal conference held on 6/12/2008.

New Claim Rejection - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,5,6,7,8,11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by **Offord et al** (1994 Langmuir 19:761-766).

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Claim 1 is drawn to a method of modifying a metallic surface comprising:
contacting the metallic surface with an asymmetric monolayer forming species
having the formula:

MFS-A-A-AG

wherein

A is an attachment linker moiety;

MFS is a monolayer forming species; and

AG is an electroconduit forming species.

Claims 5,6,7,8,11-14 represent variations thereof.

Offord et al teach throughout the document and especially the abstract the self-assembly of mixed dialkyl disulfides monolayers adsorbed on gold substrates.

In figure 1, compound 8 reads on claims 1,5,6,8 when MFS is C-18, attachment linker (A) is sulfur and AG is tert-butyl. Said C-18 of compound 8 according to Offord et al does not conduct electricity, thus is taken as an insulator, as set forth in claim 7. Bearing four carbons, said tert-butyl group being AG reads on claims 11 and 12 when R3-R5 are each an alkyl group, claim 13 when n is 0 and is directly attached as set forth in claim 14.

New Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Offord et al** (1994 Langmuir 19:761-766) in view of **Marks et al** (US Patent 6,203,758 – PTO 892 3/9/2007).

Offord et al is relied on as above.

Offord et al do not teach: contacting a metallic surface with a nucleic acid or protein capture binding ligand, as set forth in claims 2-4; a substituted or heteroalkyl containing MFS insulator, as set forth in claims 9-10.

Marks et al teach, throughout the document and especially the abstract and figure 4, methods employing device bearing a plurality of gold microelectrodes for detecting multiple molecular interactions in a microarray format.

Marks et al teach in figure 5A, an oligonucleotide probe (capture binding species) bearing a monolayer forming species (MFS) with a terminal sulfhydryl group (A) for depositing on said microelectrodes, as set forth in claims 2 and 3. Said MFS of Marks et al is heteroalkyl substituted, as set forth in claim 9 and 10.

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Marks et al teach in column 4, line 46 alternative embodiments for said capture binding entities including proteins, as set forth in claim 4.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made, to study the mixed dialkyl disulfides monolayers on gold substrates per Offord et al in with the microelectrode array device according Marks et al.

One of ordinary skill in the art would have been motivated to examine the mixed dialkyl disulfides minelayers on gold substrates using per Offord et al with the microelectrode array device according to Marks et al because the microarray is rapid and sensitive, as noted by Marks et al in column 3, line 25 and moreover, being able to perform multiple measurements simultaneously, in an array format, would provide more data in less time.

One of ordinary skill in the art would have had a reasonable expectation of success in combining the mixed dialkyl disulfides monolayers deposited on gold substrates per Offord et al with the microelectrode array device of Marks et al because both references concern derivatization of gold surfaces with thiol and disulfide groups, thus the method of Offord et al lies well within the scope of technology according to Marks et al.

Claim Rejections - 35 USC § 112

The following is a quotation of the **second** paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 lines 1-3 recites "A method of modifying a metallic surface comprising: contacting the metallic surface with an asymmetric **monolayer forming species** having the formula: MFS-A-A-AG" Emphasis added. Yet, claim 1 line 6 defines "MFS **is a monolayer forming species.**" Emphasis added. The metes and bounds of claim 1 and all dependent claims are unascertainable because it is not clear if a monolayer forming species refers to the entire MFS-A-A-AG structure or else just the MFS portion

In accordance with MPEP 2173.02: If the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement, a rejection of the claim under 35 U.S.C. 112, second paragraph, would be appropriate. See *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470, 28 USPQ2d 1190, 1195 (Fed. Cir. 1993).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Gross whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Douglas Schultz can be reached on 571 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher M Gross
Examiner
Art Unit 1639

cg

/JD Schultz, PhD/
Supervisory Patent Examiner, Art Unit 1635